

**Appendix M**

**Groundwater Monitoring Results for the Juniper Mine**

GWSCREEN Version 2.5 - Test Problems (Card 1)

TIME OF RUN: 09:06:30.02 DATE OF RUN: 06/12/01

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*   This output was produced by the model:   *
*
*           GWSCREEN                       *
*           Version 2.5a                   *
*   A semi-analytical model for the assessment *
*   of the groundwater pathway from the leaching *
*   of surficial and buried contamination and   *
*   release of contaminants from percolation ponds *
*           04/05/2001                     *
*           Arthur S. Rood                   *
*   Idaho National Engineering and           *
*   Environmental Laboratory                 *
*           PO Box 1625                     *
*           Idaho Falls, Idaho 83415        *
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#### OUTPUT FILE NAME:

juniper.out

#### INPUT FILE NAME:

juniper.PAR

Title: Nitrate at Juniper mine GWSCREEN Ver 2.5 25 m vert avg source (Card 1)

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#### Model Run Options

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IMODE Contaminant Type and Impacts:	5
ITYPE (1) Vert Avg (2) 3D Point (3) 3d Avg:	1
IDISP (0) Fixed Dispersivity (1-3) Spatially Varying:	0
KFLAG (1) Max Conc (2) Conc vs Time (3) Grid Output:	1
IDIL (1) No dilution factor (2) Include Dilution Factor:	1
IMOIST Source Moisture Content Option:	1
IMOISTU Unsaturated Moisture Content Option:	1
IMODEL (1) Surface/Buried Src (2) Pond (3) Ust Def:	1
ISOLVE (1) Gaussian Quadrature (2) Simpsons Rule: (Aquifer)	1

ISOLVEU (1) Gaussian Quarature (2) Simpsons Rule: (Unsat Zone) 1  
Health Effects: Carcinogenic incidence risk for non-radiological contaminants  
Output mass/activity units: mg  
Output concentration units: mg/m\*\*3  
Dose/Risk Conversion Units: kg-d/mg  
Output health effects units: carcinogenic risk

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#### Exposure Parameters

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Body Mass (kg): 70. Averaging Time (days): 25550.  
Water Ingestion (L/d): 2.000E+00 Exposure Freq (day/year): 3.500E+02  
Exposure Duration (y): 3.000E+01 Limiting Dose: 1.000E-06

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#### Site Parameters

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X Coordinate: 0.000E+00 Y Coordinate: 0.000E+00  
Source Length (m): 3.050E+00 Source Width (m): 3.050E+00  
Percolation Rate (m/y): 1.000E-01  
Source Thickness (m): 1.230E+00 Src Bulk Density (g/cc): 1.500E+00  
Source Moisture Content: 3.000E-01

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#### Unsaturated Zone Parameters

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Unsat Zone Thickness (m): 9.600E+00 Unsat Bulk Density: 1.900E+00  
Unsat Dispersivity (m): 1.000E+00 Unsat Moisture Content: 3.000E-01

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#### Aquifer Zone Parameters

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Longitudinal Disp (m): 9.000E+00 Transverse Disp (m): 4.000E+00  
Aquifer Thickness (m): 1.500E+01 Well Screen Thickness (m): 1.500E+01  
Darcy Velocity (m/y): 5.700E+01 Aquifer Porosity: 1.000E-01  
Bulk Density (g/cc): 1.900E+00

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#### Calculated Flow Parameters

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Percolation Water Flux (m3/y): 9.3025E-01  
Unsat Pore Velocity (m/y): 3.3333E-01  
Aquifer Pore Velocity (m/y): 5.7000E+02  
Longitudinal Disp (m\*\*2/y): 5.1300E+03  
Transverse Disp (m\*\*2/y): 2.2800E+03

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#### Contaminant Data

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Contaminant Name: Nitrate  
Half Life (y): 1.000E+25  
Other Source Loss Rate (1/y): 0.000E+00  
Kd Source (ml/g): 0.000E+00  
Solubility Limit (mg/L): 1.183E+06  
Molecular Weight (mg/L): 8.000E+01  
Initial mass/activity: 3.300E+09  
Kd Unsat (ml/g): 0.000E+00  
Kd Aquifer (ml/g): 0.000E+00  
Risk/Dose Conversion Factor: 1.000E+00

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#### Calculated Contaminant Values

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Decay Constants (1/y): 6.9315E-26  
Leach Rate Constant (1/y): 2.7100E-01  
Initial Pore Water Conc (Ci or mg/m\*\*3): 9.6136E+08  
Solubility Limited Mass (mg): 4.0608E+09  
Unsaturated Retardation Factor: 1.0000E+00  
Mean Unsaturated Transit Time (y): 2.8800E+01  
Leading Edge Arrival Time (y): 2.3751E+00  
Aquifer Retardation Factor: 1.000E+00  
Minimum Peak Window Time (y): 1.1875E+00  
Maximum Peak Window Time (y): 5.4382E+01

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Results for Receptor X = 1.53000E+00 Y = 0.00000E+00  
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Peak Concentration (mg/m\*\*3): 6.368E+03  
Time of Peak (y): 2.7287E+01  
Concentrations Averaged Between: 1.2287E+01 and 4.2287E+01 years  
Average Concentration (mg/m\*\*3): 4.823E+03  
Maximum Dose: 5.663E-02  
Maximum Allowable Inventory (mg): 5.827E+04  
Execution Time (Seconds): 0

